SERVICE MANUAL



US Model Canadian Model AEP Model UK Model E Model

Model Name Using Similar Mechanism	NEW
Tape Transport Mechanism Type	MT-77-44

SPECIFICATIONS

Recording system: 2-track 1-channel monaural

Frequency response: 150-8 000 Hz (For normal tape TYPE I) Power output (DC): 250 mW (at 10% harmonic distortion)

Input: Microphone input jack (minijack) sensitivity 0.2 mV for 3 kQ or

lower impedance microphone

Output: Earphone jack (minijack) for 8-300 ohm earphone Power requirements: 3 V DC, two size AA (R6) batteries

DC IN 3 V jack accepts: Sony AC-77 AC power adaptor

120 V AC, 60 Hz

Sony DCC-70 car battery cord (not supplied) for use on 12 V car battery

Battery life:

Batteries	Recording (hours)
Sony batteries SUM-3 (NS)	Approx. 2
Sony alkaline batteries AM3 (N)	Approx. 6

For maximum performance, we recommend the use of alkaline batteries. Dimensions: Approx. 111.8 \times 35.2 \times 79.5 mm (w/h/d)

 $(4^{3/4} \times 1^{7/16} \times 3^{1/4})$ inches)

Inc. projecting parts and controls Weight: Approx. 260 g (9.2 oz) incl. batteries Accessories supplied: Carrying case (1)

Earphone microphone (1)

AC power adaptor (AC-77) (1) (US model only)

Note: Use only the recommended AC power adaptor or car battery cord manufactured by Sony. Polarity of the plugs of other manufacturers may be different.

Polarity of the TCM-77V



Design and specifications subject to change without notice.





FEATURES

- Auto-reverse function allows you to record or playback both sides of a cassette continuously without turning the cassette over.
- A large display window allows you to read indicators easily.
- Cue marker function to mark a desired portion during recording.
- VOR function allows you to record only when sound is picked up.
- Adjustable tape speed in playback mode.
- Equipped with a microphone sensitivity switch to adjust the recording level depending on the microphone you are using and the recording condition.
- Safety HOLD switch to prevent the function buttons (REC, PLAY, FF/CUE, PAUSE, REW/REVIEW, STOP, DIR) from being activated by mistake.

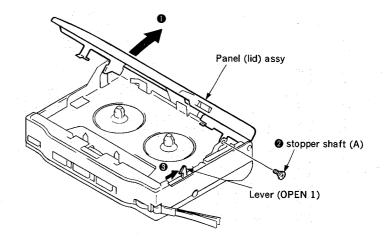
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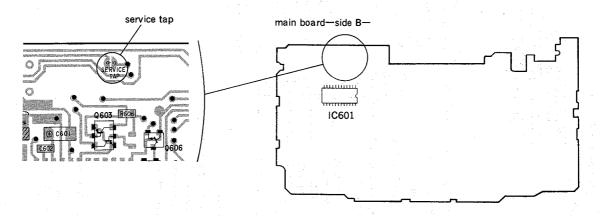
SECTION 1 SERVICING NOTES

1-1. METHOD OF TORQUE MEASUREMENT AND TAPE PASS CHECK

- 1. Open the panel (lid) assy.
- 2. Remove the stopper shaft (A).
- 3. Insert a torque meter and a mirror cassette and measure the torque and tape pass.
- 4. When taking out a torque meter and a mirror cassette, press the STOP button, shift the lever (Open 1) in the direction of an arrow 3 and return the head completely.



1-2. SERVICE MODE



Soldering the service tap allows to check the each mode of the mechanism deck on the condition that the door is opened.

(1) PLAY mode Press the PLAY button.

(2) REC mode........... In the FWD mode, REC SW (S706) is momentarily turned ON.

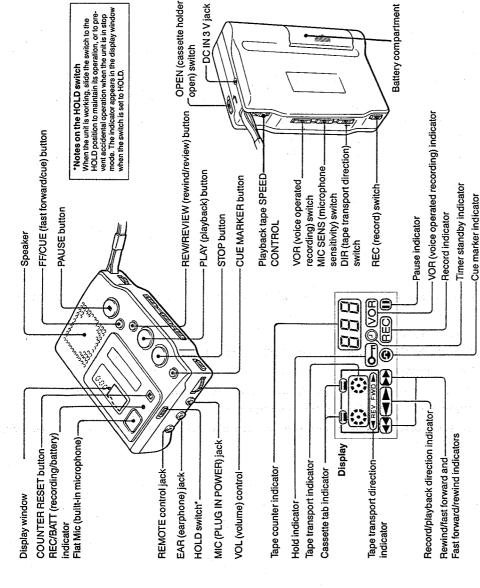
(3) PAUSE modePress the PAUSE button.

(4) STOP modePress the STOP button. (Stops after setting REW mode for approximately two seconds.)

(5) DIR modePLAY button \rightarrow S101 \rightarrow DIR SW (S707) is momentarily turned ON.

(6) FF/REW mode Press the FF/REW button. (Stops after setting FF or REW mode for approximately two seconds.)

2-1. PARTS IDENTIFICATION



INSTALLING BATTERIES 2-2.

indicators will appear in the display window right after all the indicators appear for a When you install batteries, the following second.

Hook one of the projecting parts of the lid into the corresponding hole of the compartment first, and then push in the other side. When the lid of the battery compartment comes off

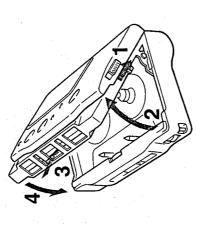
SECTION 2 GENERAL

2-3. INSTALLING A CASSETTE

Install a cassette when the unit is in the stop mode. Take up any stack of the tape with a pencil before installing a cassette.

- Slide OPEN in the direction of the arrow.
 - 2 Open the lid while keeping OPEN slid.
 - 3 Install a cassette.

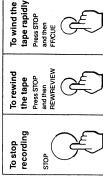
4 Close the lid.



The following indicators appear in the display window.
The FWD ▶ indicator always appears when you open the lid. When you install a cassette

000 **○** 4 ()

2-4. RECORDING



	·	
Rewind	REW/REVIEW button	REW/REVIEW button
Fast forward	FF/CUE button	FF/CUE button
Display during recording or playback	Upper (FWD) side	Reverse (REV) side FF/CUE button REWIREVIEW butt

wound in forward direction by pressing FF/CUE, and in the rection by pressing REW/REVIEW, regardless of which side ording on or listening to.



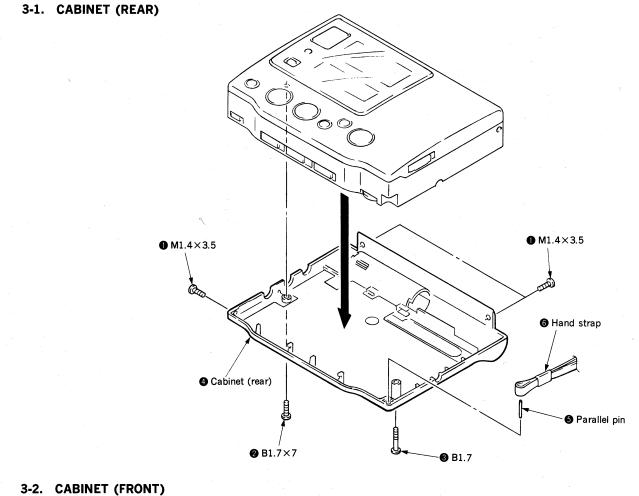
000

MIC SENS:	Могн	L or M	
	Earphone microphone Built-in microphone	External microphone (not supplied)	

	MIC SENS***
ud place	LorM
niot or opporation	7074

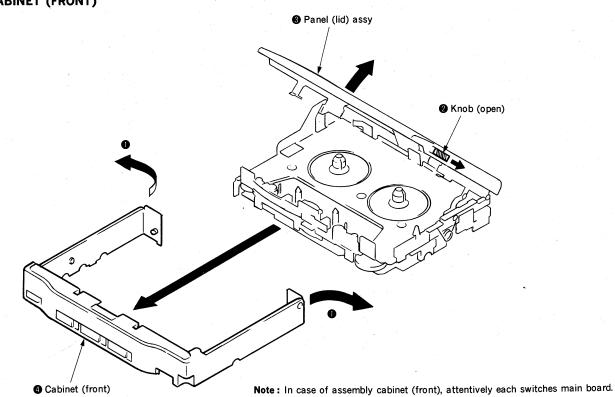
ving the material just recorded recording, press REW/REVIEW. /ou release, playback will begin a

000

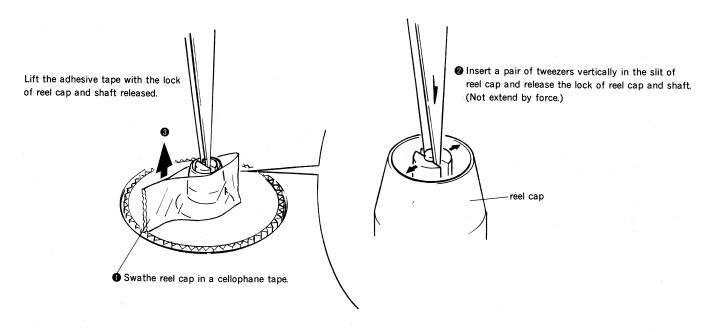


Note: Follow the disassembly procedure in the numerical order given.

SECTION 3 DISASSEMBLY



3-3. GEAR (S REEL, T REEL) ASSY



SECTION 4 MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcoholmoistened swab:

> record/playback head erase head

pinch roller rubber belts

capstan

idlers

- 2. Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
- 3. Do not use a magnetized screwdriver for the adjustment.
- 4. After the adjustments, apply suitable locking compound to the parts adjusted.
- 5. The adjustments should be perfored with the rated power supply voltage unless otherwise noted.

Torque Measurement

Torque	Torque meter	Meter reading 22—45g•cm (0.31—0.62 oz•inch)		
Forward	CQ-102C			
Forward back tension	CQ-102C	1.0-3.5g•cm (0.014-0.049 oz•inch)		
Reverse	CQ-102RB	22-45g•cm (0.31-0.62 oz•inch)		
Reverse back tension	CQ-102RB	1.0-3.5g•cm (0.014-0.049 oz•inch)		
Fast Forward, Rewind	CQ-201B	more than 60g·cm (more than 0.83 oz·inch)		

Tape Tension Measurement

Mode	Meter	Meter Reading
Forward	CQ-403A	more than 50g
Reverse	CQ-403R	(more than 1.76 oz)

SECTION 5 **ELECTRICAL ADJUSTMENTS**

PRECAUTION

- 1. The adjustments should be performed with the following procedure unless otherwise noted.
 - Switches and controls position

Forward/Reverse switch (S101): Forward

Contents

3kHz, 0dB

MIC SENS switch (S102)

: H (high)

VOLUME control (RV101) VOR switch (S501)

: max. : OFF

: OFF

: OFF

Use

speed checker LFM-30

10kΩ O

digital frequency

Tape speed adjustment

TAPE SPEED control (RV601): mechanical center

REC switch (S706)

Test Tape Tape

WS-48A

Procedure:

Tape Speed Adjustment

Mode: playback

test tape

WS-48A (3kHz, 0dB)

REVERSE switch (S707)

SCI7710YHA



XN4501

1. GND

UN5114 UN5115 UN5215

UN5217 2SB1218A-R 2SD1819A-R



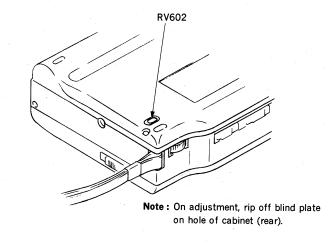
Adjustment Limits:

Speed checker	Digital frequency counter
3,000Hz±0.5%	2,985—3,015Hz

Frequency difference between the beginning and the end of the tape should be within 1% (30Hz).

earphone jack

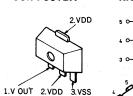
Adjustment Location:



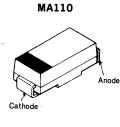
DIAGRAMS

SECTION 6

6-1. SEMICONDUCTOR LEAD LAYOUTS SCI7700YBA XN4404













XN4601















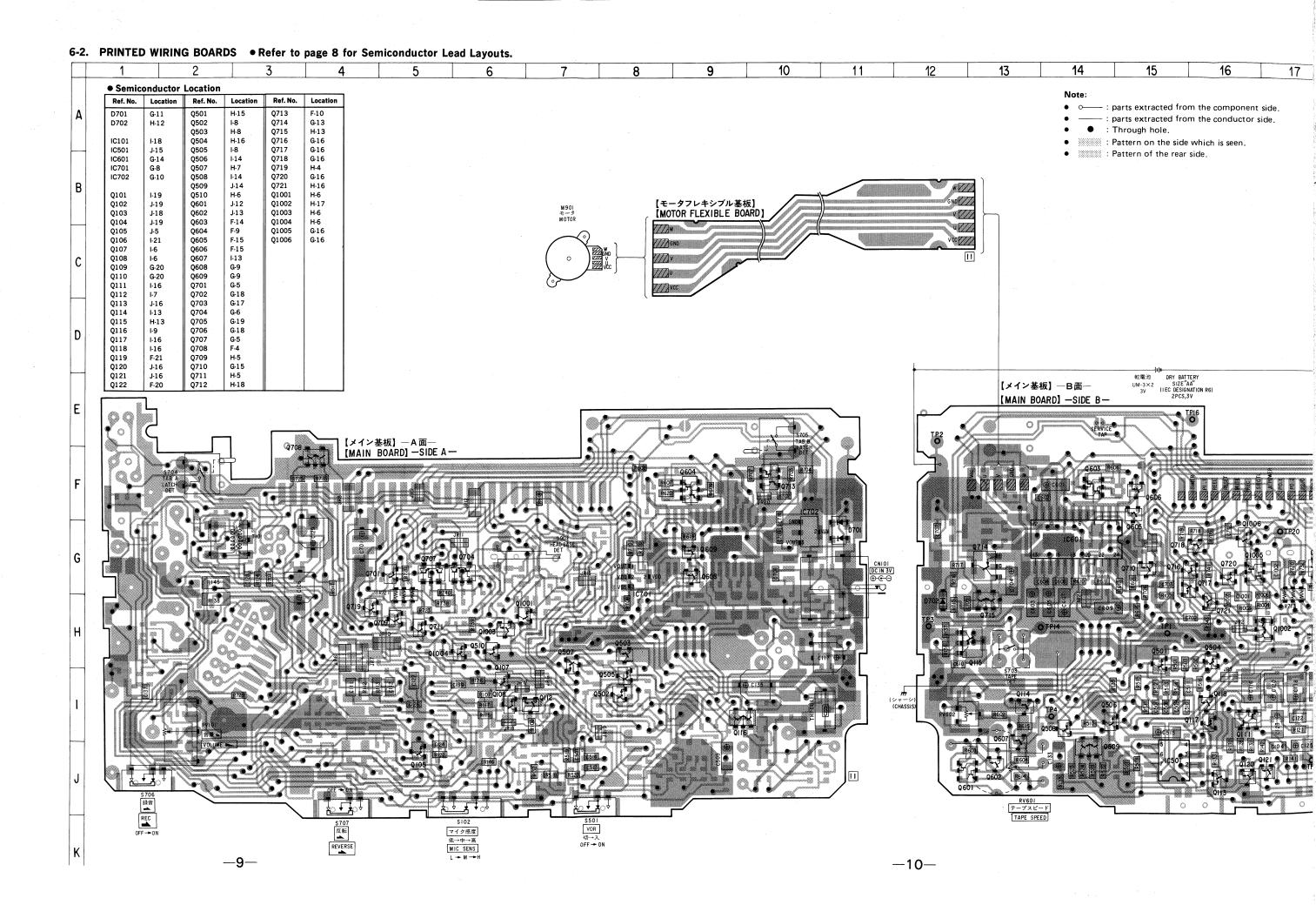


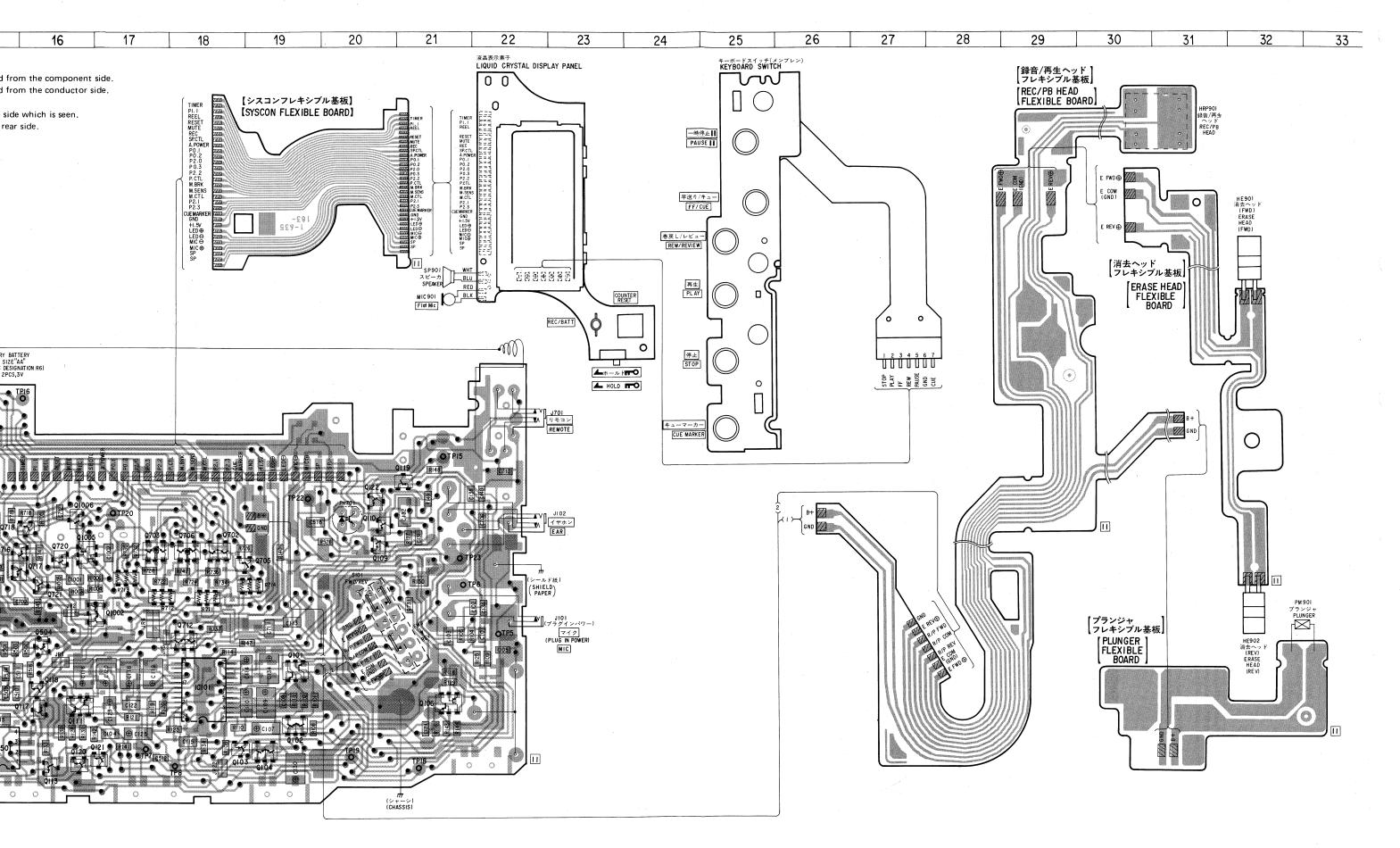


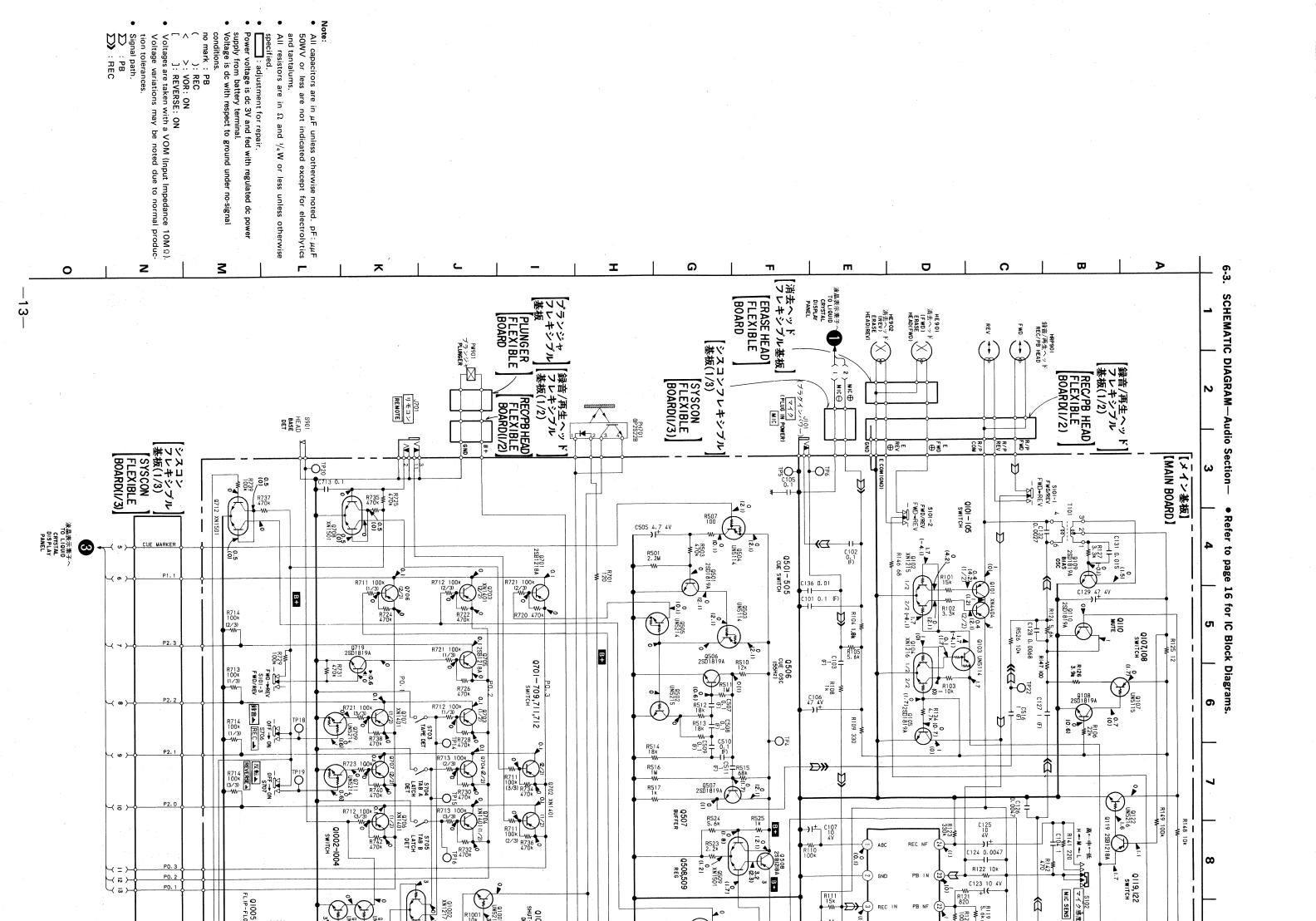


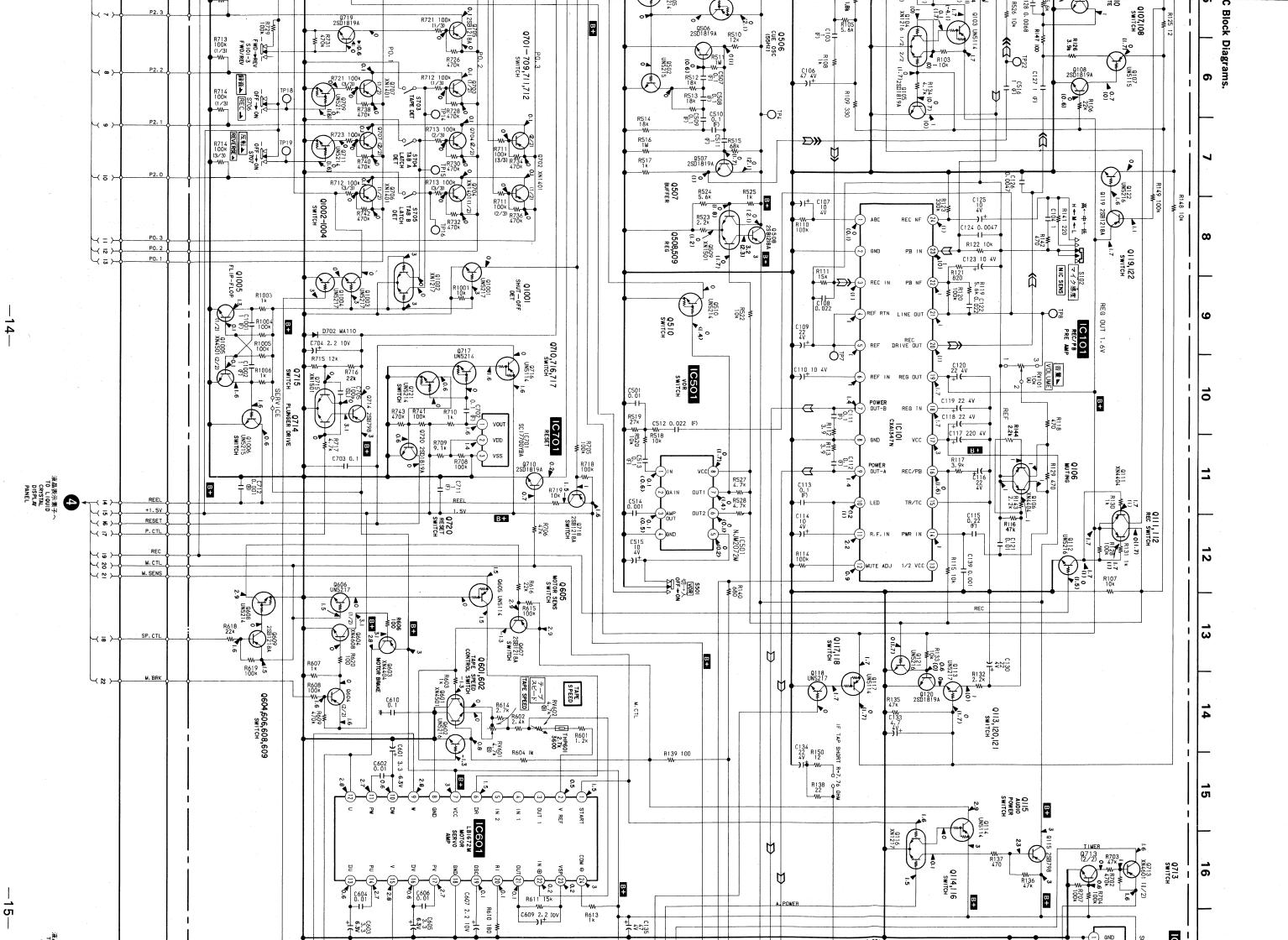




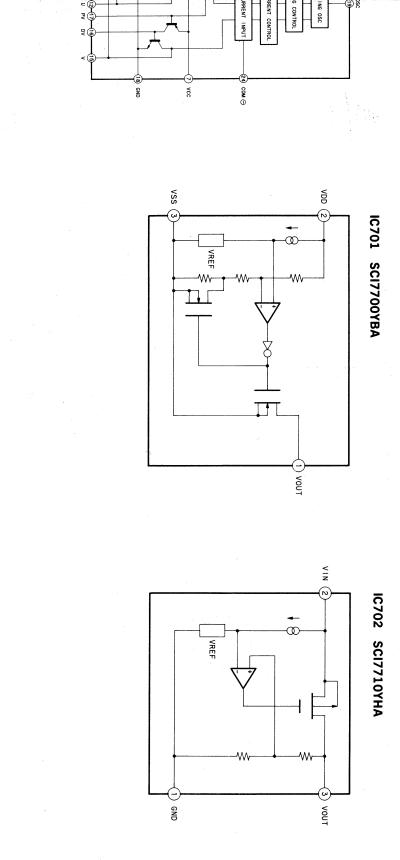


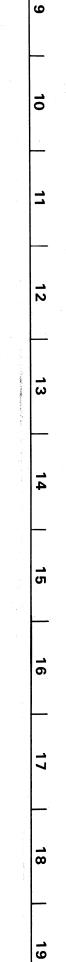


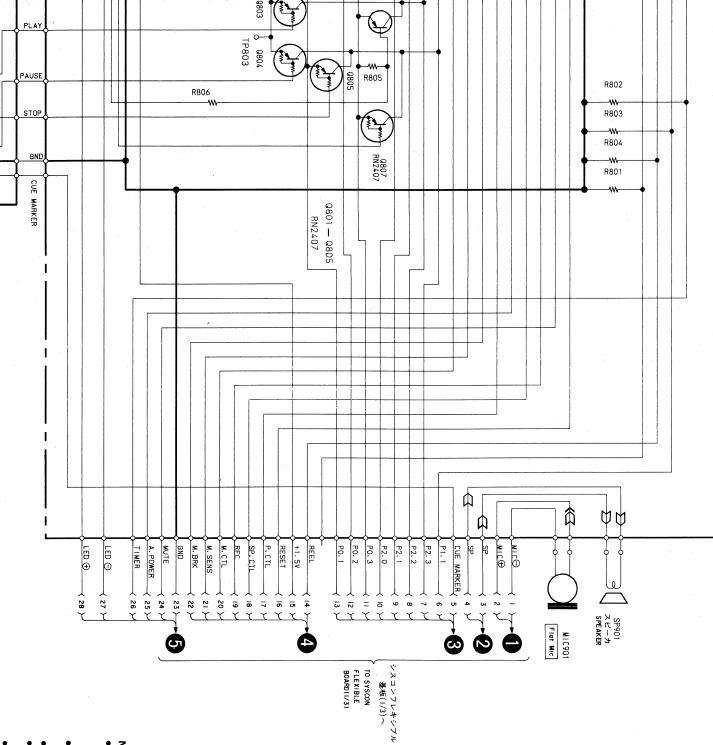




-16-







- All capacitors are in μF unless otherwise noted. pF: $\mu \mu F$ 50WV or less are not indicated except for electrolytics and tantalums.

 All resistors are in Ω and 1/4W or less unless otherwise recified.

- specified.

 adjustment for repair.

 Power voltage is dc 3V and fed with regulated dc power supply from battery terminal.

 Voltage is dc with respect to ground under no-signal conditions.

- no mark : PB

 (): REC

 < >: VOR: ON

 []: REVERSE: ON

 [Voltages are taken with a VOM (Input Impedance 10M ℚ).

 Voltage variations may be noted due to normal production tolerances.

 Signal path.

 ∑): PB

 ∑): REC

S803-6

REW/REVIEW S803-3

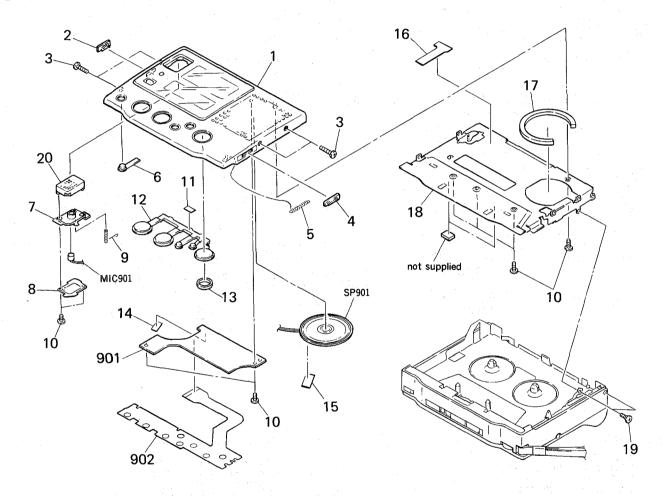
SECTION 7 EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts Example:

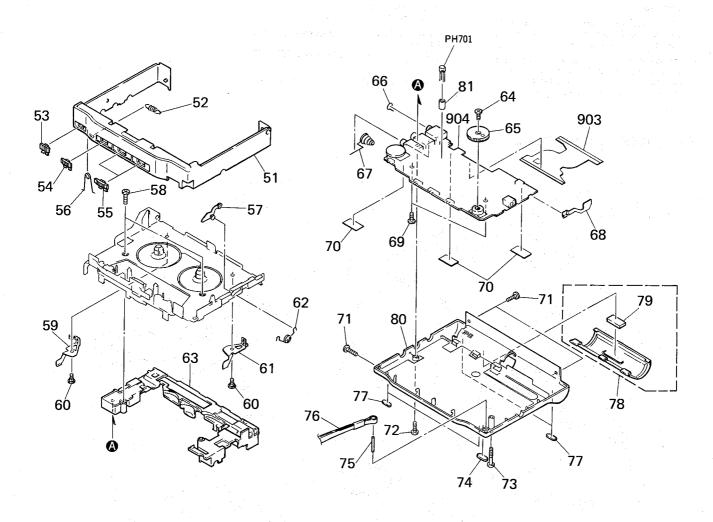
 (RED) ... KNOB, BALANCE (WHITE)
 †
 Cabinet's Color

7-1. CASSETTE HOLDER BLOCK



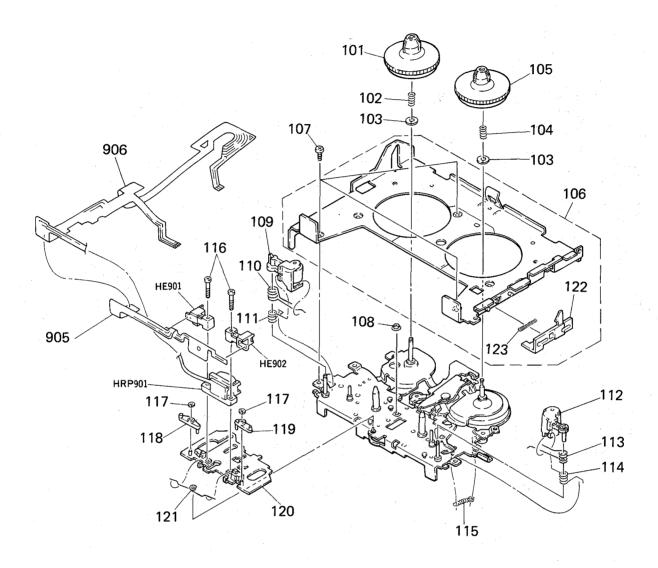
Ref.No	Part No.	Description	Remarks	Ref.No	Part No.	Description		Remarks
1 2 3 4 5 6 7 8 9 10 11 12 13	3-360-614-01 3-704-197-51 3-360-632-01 3-559-402-00 3-360-610-01 3-360-613-01 3-360-635-01 3-318-382-91 3-831-441-XX 3-360-642-01	PANEL (LID) ASSY KNOB (HOLD) SCREW (M1.4X3.5), LOCKING KNOB (OPEN) SPRING, TENSION BUTTON (CUE) CUSHION (MICROPHONE) CABINET (MICROPHONE LOWER) SPRING, GROUND SCREW (1.7X2.5), TAPPING CUSHION BUTTON (P.S) CUSHION (PAUSE)		14 15 16 17 18 19 20 901 902 MIC901 SP901	3-360-607-01 X-3328-424-1 3-311-772-11 X-3328-428-1 A-3089-558-A 1-572-212-11 1-542-142-11	CUSHION (B) CUSHION (HOLDER) CUSHION (SP) HOLDER ASSY, CASSETT SHAFT (A), STOPPER CABINET (MIC) ASSY PC BOARD ASSY, SYSTE (LIQUID CRYSTAL DISPL SWITCH, KEYBOARD MICROPHONE, BUILT-IN	M CONTROL AY PANEL)	

7-2. CABINET BLOCK



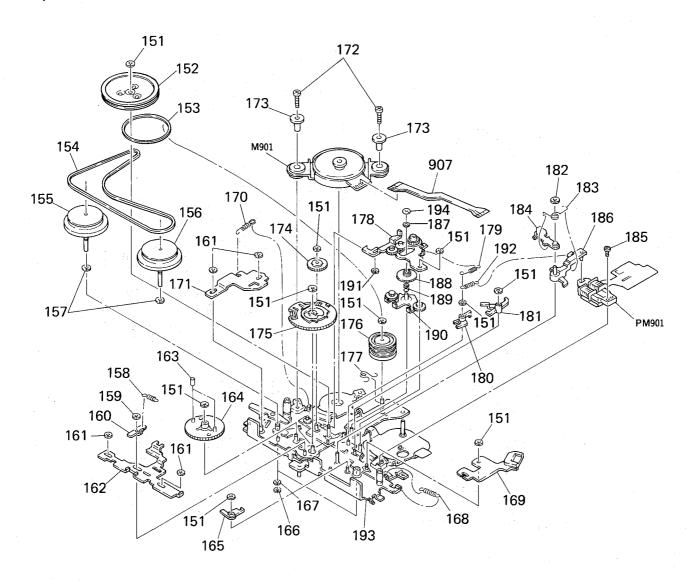
Ref.No	Part No.	Description	Remarks	Ref.No	Part No.	Description	Remarks
51	3-360-647-11	CABINET (FRONT)	1	68	3-360-627-01	TERMINAL BOARD, BATTERY	
52	3-360-633-01	SPRING, TENSION		69	3-703-502-31	SCREW (+PHW 1.4X3)	
53	3-360-622-01	KNOB (REC)		70	3-831-441-11	CUSHION (B)	
54	3-360-623-01	KNOB (DIR)		71	3-704-197-51	SCREW (M1.4X3.5), LOCKING	
55	3-360-624-01	KNOB (VOR)		72		SCREW (B1.7X7), TAPPING	
56	3-360-625-01	SPRING (REC), TORSION		73		SCREW (B1.7), TAPPING	
57	X-3328-425-1	LEVER ASSY, TOGGLE	Secretary of	74	3-349-258-11	PLATE, BLIND	
58	3-893-942-31	SCREW (1.7X4), TAPPING (B)		. 75	3-576-082-00	PIN, PARALLEL	
59	* 3-360-637-01	LEVER (CLAW, L)		76	3-360-636-01	STRAP, HAND	
60	3-333-124-01	SCREW (M1.4), STEP, PRECISION		77		CUSHION (FOOT)	
61	* 3-360-638-01	LEVER (CLAW, R)		78		LID ASSY, BATTERY CASE	79
62	3-360-620-01	SPRING (HOLDER), TORSION		79	9-911-815-01	CUSHION	
63	3-360-644-01	FRAME (MD)		80	X-3328-433-1	CABINET (REAR) ASSY	
64	3-318-382-31	SCREW (1.7X3), TAPPING	and the second	81		SPACER (REFLECTOR)	
65	3-360-621-01	KNOB (SPEED)	# ¹	903		PC BOARD KIT, SYSCON FLEX	(IBLE
66	3-362-348-01	SPRING (REMOTE CONTROL)		904		PC BOARD ASSY, MAIN	
67	3-360-626-01	SPRING, BATTERY COIL		PH701		PHOTO REFLECTOR GP2S22B	

7-3. MECHANISM BLOCK (1) (MT-77-44)



Re	ef.No	Part No.	<u>Description</u> Remar	<u>ks</u>	Ref.No	Part No.	Description		Rema	<u>rks</u>
10	01	X-3328-420-1	GEAR (S REEL) ASSY	1	115	3-360-521-01	SPRING, TENSION		18861	
10	02	3-360-520-01	SPRING (3), COMPRESSION		116	3-355-407-01	SCREW (M1.4), STEP			
10	03	3-701-436-51	WASHER, POLYEHTHYLENE (T=0.2)		117	3-363-748-11	WASHER (0.9-2.3) (T=0.25)		
10	04	3-360-519-01	SPRING (3), COMPRESSION		118	X-3328-415-1	LEVER (P PRESS,R) ASSY			
10	05	3-360-604-01	GEAR (T REEL)	F	119	X-3328-416-1	LEVER (P PRESS,N) ASSY			
10	06	X-3328-417-1	PANEL ASSY, REEL 122,	123	120	X-3328-422-1	LEVER (HEAD) ASSY	· ·	1200	
10	07	3-704-197-21	SCREW (M1.4X2.5), LOCKING		121	3-360-565-01	SPRING (HEAD RETURN),	TORSION	44.5	
10	80	3-355-380-01	COLLAR		122	3-360-508-01	LEVER (OPEN 1)			
10	09	X-3328-406-1	LEVER (PINCH R) ASSY		123	3-360-512-01	SPRING, COMPRESSION	100		
11	10	3-360-550-01	SPRING (PINCH R), TORSION		905	* 1-635-263-11	PC BOARD, ERASE HEAD	FLEXIBLE	6 3 7 7	
11	11	3-360-553-01	SPRING (P RETURN R), TORSION		906	* 1-635-262-11	PC BOARD, REC/PB HEAD	FLEXIBLE		
11	12	X-3328-407-1	LEVER (PINCH N) ASSY		HE901)	1 540 700 11	HEAD MACHETIC (EDACE	e e e e e e e e e e e e		205
11	13	3-360-551-01	SPRING (PINCH N), TORSION	2.0	HE902	1-545-732-11	MEAD, WAGNETIC (ERASE	Pro Estados		905
11	14	3-360-552-01	SPRING (P RETURN N), TORSION		HRP901	1-543-718-11	HEAD, MAGNETIC (REC/P	B)		906
11 11 11	11 12 13	3-360-553-01 X-3328-407-1 3-360-551-01	SPRING (P RETURN R), TORSION LEVER (PINCH N) ASSY SPRING (PINCH N), TORSION		906 HE901) HE902)	* 1-635-262-11 • 1-543-732-11	PC BOARD, REC/PB HEAD HEAD, MAGNETIC (ERASE) FLEXIBLE)		

7-4. MECHANISM BLOCK (2) (MT-77-44)



Ref.N	lo Part No.	Description	Remarks	Ref.No	Part No.	Description	Remarks
151	3-338-645-31	WASHER (0.8-2.5) (T=0.25)	· · · · · · · · · · · · · · · · · · ·	175	3-360-542-01	GEAR (SET UP A)	
152	3-360-566-01			176		LIMITER ASSY	
153	3-360-527-01	•		177	3-360-554-01	SPRING (TU), TORSION	
154	3-360-526-01		. 1	178		LEVER (FR RELEASE) ASSY	
155	Y-3328-410-1	FLYWHEEL (N) ASSY		179		SPRING, TENSION	
156	X = 3328 = 409 = 1	FLYWHEEL (R) ASSY		180		LEVER (FR RELEASE.B)	
157	3-350-945-31			181		LEVER (SHUT-OFF, A)	
158	3-360-546-01			182		WASHER (T=0.25)	
159	3-363-748-01			183		SPRING (TR), TORSION	
160	3-360-559-01			184		LEVER (TRIGGER. E)	
161	3-341-473-01			185		SCREW (M1.4X3.3), TOOTHED LOCK	
162	*3-360-531-01			186	3-355-379-01	LEVER (TRIGGER D)	
163	3-363-129-01			187			
164	3-363-130-01			188	3-360-540-01	WASHER GEAR (FRB)	
165	3-360-548-01	LEVER (TRIGGER, C)		189	3-355-396-01	SPRING, COMPRESSION	
166	3-348-993-01			190	X-3328-421-1	LEVER (FR) ASSY	
167	3-350-989-01	WASHER (T=0.25)		191	3-349-859-01	WASHER	
168	3-360-547-01			192	3-363-792-01	SPRING, TENSION (TRIGGER, D)	
169	3-355-399-01			193	X-3328-423-1	CHASSIS ASSY	
170	3-360-563-01			194	3-363-748-11	WASHER (0.9-2.3) (T=0.25)	
171	3-362-662-01			907	*1-635-226-11	PC BOARD, MOTOR FLEXIBLE	
172	3-703-816-21		HEAD	M901	1-541-716-11	MOTOR (NBL-122)	
173	3-360-510-01		i	PM901	1-454-512-11	SOLENOID, PLUNGER	
174	X-3328-405-1						
			·				

SECTION 8 ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS: MF: μ F, PF: $\mu\mu$ F.

RESISTORS

- All resistors are in ohms.
 F: nonflammable

MMH: mH, UH: μH

SEMICONDUCTORS

In each case, U: μ, for example: UA...: μΑ..., UPA...: μPA..., UPC...: μPC, UPD...: μPD...

The components identified by mark A or dotted line with mark
A are critical for safety.

Replace only with part number specified.

Ref.No Part No.	Description				Ref.No	Part No.	Description			
901 A-3089-558-A	PC BOARD ASSY, SYSTEM CON			[:	C510		CERAMIC CHIP	0.1MF		25V
902 1-572-212-11	(LIQUID CRYSTAL DISPLAY PA SWITCH, KEYBOARD	NEL)			C511		CERAMIC CHIP	1MF	100/	16V
	PC BOARD KIT, SYSCON FLEXI	D) E		1	C512 C513		CERAMIC CHIP	0.022MF	10%	25V
	PC BOARD RIT, STSCON FLEXI	DLE		. [C513		CERAMIC CHIP	0.1MF	100/	25V
	PC BOARD, ERASE HEAD FLE	(IBLE			C514	1-102-904-11	CERAMIC CHIP	0.001MF	10%	50V
	41			- 1	C515	1-135-201-11	TANTAL. CHIP	10MF	20%	4V
	PC BOARD, REC/PB HEAD FLE	XIBLE			C516	1-164-346-11	CERAMIC CHIP	1MF		16V
907 * 1-635-226-11	PC BOARD, MOTOR FLEXIBLE			- 1	C601		TANTAL CHIP	3.3MF	20%	6.3V
				1	C602		CERAMIC CHIP	0.01MF	10%	25V
<u>C</u>	APACITOR			·.	C603	1-135-180-21	TANTAL. CHIP	3.3MF	20%	6.3V
C101 1-164-156-11	CERAMIC CHIP 0.1MF		25V	· 1	C604	1-162-970-11	CERAMIC CHIP	0.01MF	10%	25V
C102 1-164-156-11	CERAMIC CHIP 0.1MF		25V	J	C605	1-135-180-21	TANTAL. CHIP	3.3MF	20%	6.3V
C103 1-164-346-11	CERAMIC CHIP 1MF		16V	ļ.	C606		CERAMIC CHIP	0.01MF	10%	25V
C104 1-164-346-11	CERAMIC CHIP 1MF		16V		C607	1-135-149-21	TANTAL CHIP	2.2MF	20%	10V
C105 1-164-156-11	CERAMIC CHIP 0.1MF		25V		C609	1-135-149-21	TANTAL CHIP	2.2MF	20%	10V
C106 1-126-607-11	ELECT CHIP 47MF	20%	4V		C610	1-164-156-11	CERAMIC CHIP	0.1MF		25V
	TANTAL, CHIP 10MF	20%	4V		C701	1-126-608-11	ELECT	330MF	20%	2V
	CERAMIC CHIP 0.022MF	10%	25V		C702		CERAMIC CHIP	0.1MF	20/0	25V
	TANTAL. CHIP 22MF	20%	4V		C703		CERAMIC CHIP	0.1MF		25V
	TANTAL. CHIP 10MF	20%	4V		C704		TANTAL CHIP	2.2 M F	20%	10V
C111 1-163-038-00	CERAMIC CHIP 0.1MF		25V		C705	1-162-053-11	CERAMIC CHIP	100PF	5%	50V
C112 1-163-038-00			25V		C706		CERAMIC CHIP	0.1MF	J/0	25V
C113 1-163-038-00			25V		C707		CERAMIC CHIP	0.1MF		25V
	TANTAL CHIP 10MF	20%	4V	- 1	C708		CERAMIC CHIP	0.1MF		25V
	CERAMIC CHIP 0.22MF	/0	25V		C709		CERAMIC CHIP	0.1MF		25V
C116 1-135-202-21	TANTAL. CHIP 22MF	20%	4V		C710	1-164-156-11	CERAMIC CHIP	0.1MF		25V
C117 1-126-246-11	ELECT CHIP 220MF	20%	. 4V	ł	C711	1-164-346-11		1MF		16V
	TANTAL CHIP 22MF	20%	4V		C712		CERAMIC CHIP	0.001MF	10%	50V
C119 1-135-202-21		20%	4V	ļ	C713		CERAMIC CHIP	0.1MF	10/0	25V
	TANTAL. CHIP 22MF	20%	4V		C1001		CERAMIC CHIP	1MF		16V
C121 1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V		C1002	1-164-246-11	CERAMIC CHIP	1MF		16V
C122 1-163-037-11		10%	25V		01002	1 104 340 11	OLIVAINIO OTIII	TIALL		104
	TANTAL CHIP 10MF	20%	4V	[CN101	1-569-369-11	JACK, EXTERNAL PO	WED IN	1 3///	
	CERAMIC CHIP 0.0047MF		50V	1	011101	1 303 303 11	SHOW ENTERNAL I O	יוו טכו) אבויי	34)	
	TANTAL CHIP 10MF	20%	4V		D701	8-719-404-16	DIODE MA713			
		-070	: "		D702	8-719-404-46	DIODE MAIIO			
C126 1-162-968-11	CERAMIC CHIP 0.0047MF	10%	50V		2,02	0 /25 404 40	DIODE MINITIO			
C127 1-164-346-11	CERAMIC CHIP 1MF	÷-/•	16V		HE901	1-543-732-11	HEAD, MAGNETIC (E	RASE)		
C128 1-162-969-11	CERAMIC CHIP 0.0068MF	10%	25V		HE902		(INCLUDING FLEXIBL		D)	
C129 1-126-607-11		20%	4V		,		(-,	
C130 1-135-202-21	TANTAL CHIP 22MF	20%	4V	*	HRP901	1-543-718-11	HEAD, MAGNETIC (R	EC/PB)		
C121 1 164 245 11	CERAMIC CHIP 0.015MF	100/	25/				(INCLUDING FLEXIBL		D)	
		10%	25V		10101	0 752 024 02	IO OVA124751			
C132 1-163-215-00 C133 1-135-151-21	CERAMIC CHIP 0.0027MF TANTAL. CHIP 4.7MF	5% 20%	.50V 4V		IC101	8-752-034-90	IC CXA1347N			
				J	IC501	8-759-701-51	IC NJM2072M			
C135 1-126-607-11		20%	4V		IC601	8-759-821-20	IC LB1672M			
		20%	4V		IC701 IC702		IC SCI7700YBA IC SCI7710YHA			
	CERAMIC CHIP 0.01MF	10%	25V							
C137 1-164-156-11			25V		J101 -	1-563-319-21	JACK (MIC)			
C138 1-162-964-11	CERAMIC CHIP 0.001MF	10%	50V	·	J102	1-507-999-21	JACK (EAR)			
C139 1-162-964-11	CERAMIC CHIP 0.001MF	10%	50V		J701	1-566-895-11	JACK IP (REMOTE)			
C140 1-162-964-11	CERAMIC CHIP 0.001MF	10%	50V		ID1				1/1004	
C501 1-162-970-11	CERAMIC CHIP 0.01MF	10%	25V		JR1 JR2	1-216-295-00 1-216-864-11	METAL GLAZE 0 METAL GLAZE 0	5% 5%	1/10W 1/16W	
C505 1-135-151-21	TANTAL CHIP 4.7MF	20%	4V	· .	JR3	1-216-295-00	METAL GLAZE 0	5%	1/10W	
C507 1-164-156-11		20/0	25V	. [JR4	1-216-296-00	METAL GLAZE 0	5%	1/8W	
C508 1-164-156-11			25V		JR5	1-216-864-11	METAL GLAZE 0	5%	1/16W	
	CERAMIC CHIP 0.1MF		25V		55	- 220 007 11		3/0	1, 10**	
				•						

Ref.No	Part No.	Description				Ref.No	Part No.	Description			
JR6 JR7 JR8 JR9 JR10	1-216-296-00 1-216-296-00 1-216-296-00 1-216-295-00 1-216-296-00	METAL GLAZE 0	5% 5% 5% 5% 5%	1/8W 1/8W 1/8W 1/10W 1/8W		Q704 Q705 Q706 Q707 Q708	8-729-402-55 8-729-403-42	TRANSISTOR XN TRANSISTOR 2S TRANSISTOR XN TRANSISTOR XN TRANSISTOR XN	B1218A-R 11401 11401		
JR11 JR12 JR15 JR16 JR17	1-216-295-00 1-216-296-00 1-216-295-00 1-216-295-00 1-216-864-11	METAL GLAZE 0	5% 5% 5%	1/10W 1/8W 1/10W 1/10W 1/16W		Q709 Q710 Q711 Q712 Q713	8-729-402-32 8-729-421-26	TRANSISTOR UN TRANSISTOR 2S TRANSISTOR UN TRANSISTOR XN TRANSISTOR XN	D1819A-R 15216 11216		
JR18 JR19 JR20 JR21 JR22	1-216-864-11 1-216-864-11 1-216-864-11 1-216-295-00 1-216-295-00	METAL GLAZE 0 METAL GLAZE 0	5% 5% 5%	1/16W 1/16W 1/16W 1/10W 1/10W		Q714 Q715 Q716 Q717 Q718	8-729-421-23 8-729-402-96	TRANSISTOR 2S TRANSISTOR XM TRANSISTOR UM TRANSISTOR UM TRANSISTOR 2S	11216 15114 15216		
M901	1-541-716-11	MOTOR (NBL-122)				Q719 Q720		TRANSISTOR 2S			
MIC901	1-542-142-11	MICROPHONE, BUIL	LT-IN (FLAT	MIC)	ľ	Q721 Q7001	8-729-421-26	TRANSISTOR UI TRANSISTOR UI	15216		
PH701	8-749-920-97	PHOTO REFLECTOR	R GP2S22B		:	Q1002	8-729-422-45	TRANSISTOR XI	N1217		
PM901 Q101 Q102		SOLENOID, PLUNGE TRANSISTOR XN441 TRANSISTOR XN12	04			Q1003 Q1004 Q1005 Q1006	8-729-422-48 8-729-402-81	TRANSISTOR UI TRANSISTOR UI TRANSISTOR XI TRANSISTOR UI	N5217 N4501		
Q103 Q104		TRANSISTOR UN51	14			•	RE	SISTOR			
Q105	8-729-402-32					R101		METAL GLAZE	15K	5%	1/16W
Q106 Q107 Q108 Q109	8-729-422-39 8-729-420-53 8-729-402-32 8-729-402-32	TRANSISTOR UN51 TRANSISTOR 2SD18 TRANSISTOR 2SD18	15 819A-R 819A-R			R102 R103 R104 R105	1-216-827-11 1-216-833-11 1-216-824-11	METAL GLAZE METAL GLAZE	3.3K 10K 1.8K 5.6K	5% 5% 5% 5%	1/16W 1/16W 1/16W 1/16W
Q110	8-729-402-32					R106		METAL GLAZE	22K	5%	1/16W
Q111 Q112 Q113 Q114	8-729-422-39 8-729-421-26 8-729-422-48 8-729-402-96	TRANSISTOR UN52 TRANSISTOR UN52 TRANSISTOR UN51	16 17 14			R107 R108 R109 R110	1-216-821-11 1-216-815-11		10K 1K 330 100K	5% 5% 5% 5%	1/16W 1/16W 1/16W 1/16W
Q115 Q116 Q117 Q118 Q119	8-729-402-55	TRANSISTOR XN12 TRANSISTOR UN51 TRANSISTOR UN52 TRANSISTOR 2SB12	17 14 17 218A-R			R111 R112 R113 R114 R115	1-216-306-11 1-216-845-11	METAL GLAZE METAL GLAZE	15K 3.9 3.9 100K 10K	5% 5% 5% 5% 5%	1/16W 1/10W 1/10W 1/16W 1/16W
Q120 Q121 Q122 Q501 Q502 Q503	8-729-421-26	TRANSISTOR UN52	16 16 819A-R 15			R116 R117 R118 R119 R120	1-216-828-11 1-216-817-11 1-216-830-11	METAL GLAZE	47K 3.9K 470 5.6K 100K	5% 5% 5% 5%	1/16W 1/16W 1/16W 1/16W 1/16W
Q504 Q505 Q506 Q507 Q508	8-729-402-96 8-729-421-26 8-729-402-32 8-729-402-32 8-729-402-55	TRANSISTOR UN52 TRANSISTOR 2SD1 TRANSISTOR 2SD1	16 819A-R 819A-R			R121 R122 R123 R124 R125	1-216-833-11 1-216-851-11	METAL GLAZE METAL GLAZE	820 10K 330K 5.6K 12	5% 5% 5% 5%	1/16W 1/16W 1/16W 1/16W 1/16W
Q509 Q510 Q601 Q602 Q603	8-729-421-23 8-729-421-26 8-729-402-81 8-729-421-26 8-729-422-39	TRANSISTOR XN12 TRANSISTOR UN52 TRANSISTOR XN45 TRANSISTOR UN52	16 16 01			R126 R127 R128 R129 R130	1-216-828-11 1-216-827-11 1-216-845-11 1-216-817-11 1-216-821-11	METAL GLAZE METAL GLAZE	3.9K 3.3K 100K 470 1K	5% 5% 5% 5% 5%	1/16W 1/16W 1/16W 1/16W 1/16W
Q604 Q605 Q606 Q607 Q608	8-729-402-16 8-729-402-96 8-729-422-48 8-729-402-55 8-729-421-26	TRANSISTOR XN46 TRANSISTOR UN51 TRANSISTOR UN52 TRANSISTOR 2SB17	08 14 17 218A-R			R131 R132 R133 R134 R135	1-216-821-11 1-216-825-11 1-216-833-11 1-216-829-11 1-216-841-11	METAL GLAZE METAL GLAZE METAL GLAZE	1K 2.2K 10K 4.7K 47K	5% 5% 5% 5% 5%	1/16W 1/16W 1/16W 1/16W 1/16W
Q609 Q701 Q702 Q703	8-729-402-55 8-729-402-55 8-729-403-42	TRANSISTOR 2SB1: TRANSISTOR 2SB1:			. 1	R136 R137 R138 R139 R140	1-216-841-11 1-216-817-11 1-216-158-00 1-216-809-11 1-216-819-11	METAL GLAZE METAL GLAZE METAL GLAZE	47K 470 22 100 680	5% 5% 5% 5% 5%	1/16W 1/16W 1/8W 1/16W 1/16W

Ref.No	Part No.	Description			
R141	1-216-813-11	METAL GLAZE	220	5%	1/16W
R142	1-216-817-11	METAL GLAZE	470	5%	1/16W
R143	1-216-825-11		2.2K	5%	
					1/16W
R144	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R145	1-216-140-00	METAL GLAZE	3.9	5%	1/8W
R146	1-216-807-11	METAL GLAZE	68	5%	1/16W
R147	1-216-809-11	METAL GLAZE	100	5%	1/16W
R148	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R149	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R150	1-216-003-11	METAL GLAZE	12	5%	1/10W
	1 210 000 11	WILLIAC GEAZE	12	370	1/10**
R501	1-216-861-11	METAL GLAZE	2.2 M	5%	1/16W
R503	1-216-853-11	METAL GLAZE	470K	5%	1/16W
R507	1-216-809-11	METAL GLAZE	100	5%	1/16W
R510	1-216-834-11	METAL GLAZE	12K	5%	1/16W
R511	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R512	1-216-836-11	METAL GLAZE	18K	5%	1/16W
R513	1-216-836-11	METAL GLAZE	18K	5%	1/16W
R514	1-216-836-11	METAL GLAZE	18K	5%	
R515	1-216-843-11	METAL GLAZE			1/16W
R516	1-216-857-11	METAL GLAZE	68K	5%	1/16W
K310	1-210-05/-11	METAL GLAZE	1 M	5%	1/16W
R517	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R518	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R519	1-216-838-11	METAL GLAZE	27K	5%	1/16W
R520	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R522	1-216-833-11		10K	5%	1/16W
R523	1-216-825-11	VACTAL CLAZE	2.01/	50/	1/1014
		METAL GLAZE	2.2K	5%	1/16W
R524	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W
R525	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R526	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R527	1-216-829-11	IETAL GLAZE	4.7K	5%	1/16W
R528	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R601	1-216-822-11	METAL GLAZE	1.2K	5%	1/16W
R602	1-216-993-11	METAL GLAZE	2.4K	5%	1/16W
R603	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R604	1-216-821-11	METAL GLAZE	1K	5%	1/16W
DCOC	1 016 000 11	11FT41 01 47F	100		
R606	1-216-809-11	METAL GLAZE	100	5%	1/16W
R607	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R608	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R609	1-216-853-11	METAL GLAZE	470K	5%	1/16W
R610	1-216-812-11	METAL GLAZE	180	5%	1/16W
R611	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R613	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R614	1-216-826-11	METAL GLAZE	2.7K	5%	1/16W
R615	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R616	1-216-837-11	METAL GLAZE	22K	5%	1/16W
				_	
R618	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R619	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R620	1-216-809-11	METAL GLAZE	100	5%	1/16W
R701	1-216-810-11	METAL GLAZE	120	5%	1/16W
R702	1-216-853-11	METAL GLAZE	470K	5%	1/16W
R703	1-216-841-11	METAL GLAZE	47K	50/	1/1614
R704	1-216-845-11	METAL GLAZE		5%	1/16W
			100K	5%	1/16W
R705	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R706	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R707	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R708	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R709	1-218-345-11	METAL GLAZE	9.1K	5%	1/16W
R710	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R711	1-236-502-11	RES, NETWORK	100KX3	-/0	-, -011
R712	1-236-502-11	RES, NETWORK	100KX3		
		•			
R713	1-236-502-11	RES, NETWORK	100KX3		
R714	1-236-502-11	RES, NETWORK	100KX3		
R715	1-218-718-11	METAL CHIP	12K	0.50%	1/16W
R716	1-218-724-11	METAL CHIP	22K	0.50%	1/16W
R717	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W

Note: The components identified by mark A or dotted line with mark A are critical for safety.

Replace only with part number specified.

Ref.No	Part No.	Description			
R718	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R719	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R720	1-216-853-11	METAL GLAZE	470K	5%	1/16W
R721	1-236-502-11	RES. NETWORK	100KX3	-,0	
R722	1-216-853-11	METAL GLAZE	470K	5%	1/16W
				. •	
R723	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R724	1-216-853-11	METAL GLAZE	470K	5%	1/16W
R725	1-216-853-11	METAL GLAZE	470K	5%	1/16W
R726	1-216-853-11	METAL GLAZE	470K	5%	1/16W
R728	1-216-853-11	METAL GLAZE	470K	5%	1/16W
D.700					
R729	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R730	1-216-853-11	METAL GLAZE	470K	5%	1/16W
R731	1-216-853-11	METAL GLAZE	470K	5%	1/16W
R732	1-216-853-11	METAL GLAZE	470K	5%	1/16W
R734	1-216-853-11	METAL GLAZE	470K	5%	1/16W
R735	1-216-853-11	METAL GLAZE	1701/	50/	. /
R736	1-216-853-11	METAL GLAZE	470K	5%	1/16W
R737	1-216-853-11	METAL GLAZE	470K	5%	1/16W
R738	1-216-853-11	METAL GLAZE	470K	5%	1/16W
R739	1-216-835-11	METAL GLAZE	470K	5%	1/16W
11753	1-210-045-11	WEINE GLAZE	100K	5%	1/16W
R740	1-216-853-11	METAL GLAZE	470K	5%	1/16W
R741	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R742	1-216-853-11	METAL GLAZE	470K	5%	1/16W
R743	1-216-853-11	METAL GLAZE	470K	5%	1/16W
R1001	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R1003	1-216-821-11	METAL GLAZE	1K	5%	1/1044
R1003	1-216-821-11	METAL GLAZE	100K	50/	1/16W
R1005	1-216-845-11	METAL GLAZE	100K	5% 5%	1/16W
R1006	1-216-821-11	METAL GLAZE	166K		1/16W
111000	1 210 021 11	WILLIAL GLAZE	1K	5%	1/16W
RV101	1-238-920-11	RES, VAR, CARBO	ON 10K (V	OLUM	E 👞)
RV601	1-238-947-11	RES, VAR, CARBO	ON 4.7K (TAPE S	SPEED)
RV602	1-238-663-11	RES, ADJ, CERMI	ER 4.7K		•
S101	1 570 014 11	OWITOH 01105 ((
S101 S102	1-572-214-11 1-571-506-41	SWITCH, SLIDE (
S501		SWITCH, SLIDE (5)	
	1-571-275-31	SWITCH, SLIDE (
S703	1-570-953-11	SWITCH, PUSH (:1)
S704	1-571-585-11	SWITCH, PUSH (1 KEY)(17	AR A)	
S705	1-571-585-11	SWITCH, PUSH (L KEY)(TA	AB B)	
S706	1-572-263-11	SWITCH, SLIDE (REC 📤)	•	
S707	1-572-263-11	SWITCH, SLIDE (REVERSÉ)	
S901	1-570-395-11	SWITCH, LEAF (H	IEAD BAS	E DET) .
C D 0 0 1	1 544 220 11	CDEAKED			
SP901	1-544-328-11	SPEAKER			
T101	1-433-286-11	TRANSFORMER, I	BIAS OSC	ILLATI	ON
THP601	1-809-137-11	THERMISTOR, PO	CITIVE		
1111 001	1 005 137 11	HIERWIISTOR, PU	SITIVE		

ACCESSORIES & PACKING MATERIALS

```
      ⚠ 1-465-481-11
      (US)....ADAPTOR, AC (AC-77)

      *3-355-341-01
      CUSHION

      3-360-641-01
      CASE, CARRYING

      *3-360-650-01
      (US)....INDIVIDUAL CARTON

      *3-360-652-01
      (US)....CASE, ACCESSORY

      *3-360-653-01
      (CND, UK, E)....INDIVIDUAL CARTON

      *3-360-655-01
      (AEP)....BAG, POLYETHLENE

      3-751-587-01
      (EXCEPT FOR US)...MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH, PORTUGUESE)

      3-751-587-21
      (AEP)....MANUAL, INSTRUCTION (ENGLISH)

      3-751-587-41
      (AEP)....MANUAL, INSTRUCTION (ENGLISH)

      3-752-541-11
      (AEP, UK, E)....MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH, PORTUGUESE)

      3-752-541-21
      (US, CND)...MANUAL, INSTRUCTION (ENGLISH)

      8-952-222-90
      (US)....MDR-E140C SET
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